

Morton (Thos. S. K.)

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FRACTURE OF THYROID AND CRICOID CARTILAGES  
AND HYOID BONE; ASPHYXIA; TRA-  
CHEOTOMY; DEATH.

BY THOMAS S. K. MORTON, M.D.,  
PROFESSOR OF SURGERY IN THE PHILADELPHIA POLYCLINIC.

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FRACTURES either of the laryngeal cartilages or of the hyoid bone, being rare and dangerous injuries, I have thought it well worth while to present a recent case in which a combined fracture of the two principal vocal cartilages and of the hyoid bone resulted in death.

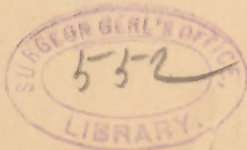
Of fractures of the larynx less than a hundred are yet upon record—to be exact, ninety-two, inclusive of cricoid fractures. Those involving the thyroid alone are much the most numerous of this aggregate. Next in frequency are those of the cricoid. Combined injury of thyroid and cricoid is rare, and fractures involving both of these cartilages and the hyoid bone are almost unknown.

Until within recent years all fractures of the larynx were considered exceedingly fatal injuries, but the latest statistics show an encouraging number of recoveries. Of thirty cases recently added to the previously existing tables of sixty-two<sup>1</sup>, but 30 per cent. perished, while former death-rates varied from 70 to 80 per cent. Heretofore all authorities have agreed that fracture of the cricoid is invariably fatal, yet in Harris's new series of cases are to be found five instances of lesion of that cartilage with recovery in four, or a death-rate of but 20 per cent., as well as five cases of fracture of thyroid and cricoid, with recovery in two, a mortality of only 60 per cent.

In the first collective paper on this subject, Hunt, in 1866, stated that no case had been recorded in which bloody expectoration and emphysema were present where recovery had taken place without

*presented by the author*

<sup>1</sup> Thomas F. Harris, Medical News, February 23, 1895.



tracheotomy. As this observation has been handed down to the present time without challenge, presumably it is sufficiently true to be a guide in treatment. All writers are certainly agreed that tracheotomy is imperatively demanded so soon as serious symptoms arise. This operation appears more rational than the recently suggested procedure of intubation, because generally serum- and blood-infiltrated, and perhaps infected, tissues have to be dealt with. Median thyroidotomy, with attempt to suture the fragments into position when displaced, has also been proposed, but not as yet adopted. On the other hand, it may be considered a part of the standard treatment to attempt to adjust the fragments by an instrument inserted upward through the tracheotomy wound when such a procedure has been considered necessary.

Jose R., a Spanish sailor, aged thirty-five years, was admitted to the Pennsylvania Hospital shortly after midnight August 28, 1894. He was not able to articulate because of his injury, and neither he nor his companions could comprehend any language but Spanish. Hence my resident surgeon, Dr. Thomas F. Branson, could elicit no more exact history than that the man had been in a fracas with several others, and that his neck or throat had been injured.

Subsequent police investigation failed to show whether this man was simply choked by hands, was struck upon the thyroid cartilage, or had his neck kicked or trodden upon.

At the time of admission he did not appear to be in a serious way, although respiration was a little strident and impeded, and "wheezing" sounds could be heard over both lungs. There were swelling of the upper portion of the front of the neck and some emphysema; also some bloody expectoration upon coughing. Palpation over the thyroid cartilage elicited crepitation, and a diagnosis of fracture was made. As the man's condition appeared to be good he was given a sedative and put to bed under the eyes of a careful watcher.

About 5 A.M. Dr. Branson was called, and found that the impediments to respiration had markedly increased, as also had the emphysema, which now occupied the whole anterior portion of the neck from clavicle to jaw. He was livid and clutched at his throat, meanwhile throwing himself about in a wild manner, as if in extreme suffering.

I was now hastily summoned to the hospital, and upon arriving in the ward found the man in the same wild excitement and very blue from asphyxia. Almost before I had time to touch the injured parts



he fell unconscious upon the bed. Instantly he was placed upon a table and a tracheotomy performed. The three upper rings of the trachea were divided, and a large tube inserted. Considerable bloody fluid and some particles of undigested food were extracted from the trachea. He did not breathe, nor had artificial respiration, which was kept up for some time, any effect whatever in reviving him. Cardiac failure had taken place, probably at the time of his losing consciousness, and no expedient that was employed could stimulate it to reaction. The tracheotomy, while complicated by the emphysematous tissues overlying the trachea, presented no feature of especial interest, and was completed in a few seconds.

Post-mortem examination revealed a vertical fracture of the right ala of the thyroid cartilage five-eighths of an inch behind the anterior median line. The posterior fragment overrode the anterior portion or body of the cartilage one-quarter of an inch, much diminishing the laryngeal space and lacerating the mucous membrane. The cricoid cartilage also presented a complete fracture upon the right side, vertical in direction and in line with the fracture of the thyroid, just behind the attachment of the crico-thyroid muscle. There was no displacement in this fracture. The hyoid bone was found broken, but not materially displaced, one-quarter inch behind the median line on the left side.

There was great infiltration of blood into the mucous membrane and underlying cellular tissues of the whole larynx and upper portion of the trachea. Some particles of food were found in the trachea and bronchi.

